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DIAGNOSTIC APPRAISAL - BUILDING INSPECTION
PUBLIC WORKS DIVISION
COMMUNITY AND ECONOMIC DEVELOPMENT DEPARTMENT

INSTITUTE OF GOVERNMENTAL
STUDIES

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RESEARCH REPORT

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CITY MANAGER

TRANSMITTAL OF DIAGNOSTIC APPRAISAL FOR THE BUILDING INSPECTION PROGRAM

BACKGROUND

The Work Planning and Performance Monitoring System team submits the final report on the evaluation of the organization, operations, and staffing of the Building Inspection section. This study was begun in November, 1974, and completed during the Spring of 1975. The evaluation focused upon:

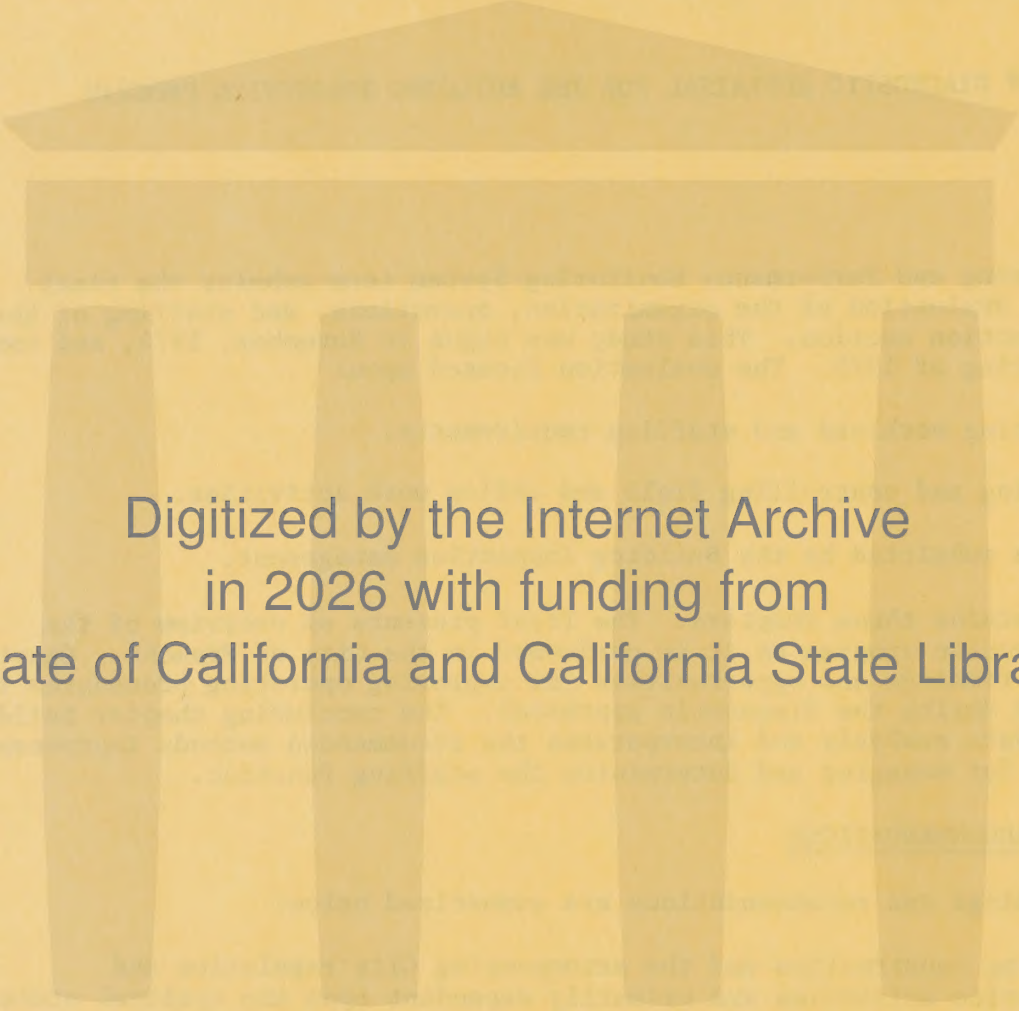
- . Examining workload and staffing requirements.
- . Planning and controlling field and office work activities.
- . Issues submitted by the Building Inspection management.

The report contains three chapters. The first presents an overview of the Building Inspection program as it is performed in the City of Fremont. Chapter II describes the findings and opportunities for improving operating procedures that were developed during the diagnostic appraisal. The concluding chapter builds on the workload data analysis and incorporates the recommended methods improvements into a system for managing and determining the staffing function.

FINDINGS AND RECOMMENDATIONS

The major findings and recommendations are summarized below:

- . Building construction and the accompanying City regulation and inspection activities are primarily dependent upon the cyclical state of the economy and the financial markets. Recent increases in the number of permits and the valuation of construction authorized may indicate an economic recovery, however, it is premature to predict a long range trend.
- . Reserve construction plan checking capabilities should be prepared to backup the Senior Building Inspector performing this task single-handedly.
- . A single permit system should be instituted to streamline and simplify the present multiple permit forms procedures.
- . The City requirements for building permits and inspection should be enforced to insure compliance.
- . Distracting features of the office facilities were identified and highly interactive spaces should be limited to provide separate activity centers.



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- . A policy decision on the provisions and effectiveness of the zoning enforcement program should be addressed.
- . The building inspection work activity data are sufficient to formulate workload statistics. The office work activities are not as conveniently displayed or verified. Uniformity in counting work activities and taking accurate time measures should be stressed throughout both the field and office, and more descriptive activity counts are needed.

The staffing system described in Chapter III bears policy considerations, because the personnel requirements are based upon placing the responsibility for setting activity service levels on management. The staffing levels are primarily dependent upon the number of permits issued, and this workload generator is difficult to forecast given the current economic trends.

The manageable variables which influence the field service levels are: (1) the time spent per inspection, and (2) the number of inspections performed per permit issued.

The WPPMS team does not advocate changing the former variable. The recommendation is to limit the average number of inspections occurring per permit to 5. The achievement of this target objective should be monitored. A companion recommendation is to implement a supervised work control system, that would, optimistically, increase the time available for field activities by 15%. Based upon these findings in the field operations and assuming status quo workload levels, there would be a programmed need for 4.5 field inspection personnel, a reduction of 0.5 positions.

In the office operations, work measurement techniques were applied which identified that 2.5 inspection personnel could perform the present tasks of the three non-management position if a 100% utilization rate was demanded. This is a preliminary conclusion, because the available work activity data was insufficient to more precisely determine workloads and staffing.

Cumulatively, if workload remains the same, Building Inspection work force reduction would pare the non-management personnel from 8 filled positions to 7 positions. Preparatory time is necessary to realize this single position reduction due to the following factors:

- . The position is split between the field and office, and abrupt organizational changes may exacerbate the redistribution of tasks.
- . Elimination of a position without a trial period for the implementation of recommended methods improvements will create hardships and mandate adjustments that may prove counter-productive to improving operational efficiency and effectiveness.
- . The increased number of permits issued during May, 1975, and the complementary increase in summer inspection demands justifies maintaining the position until a normal trend is identified.

Before any employee is laid-off, all alternative opportunities for relocation should be explored.

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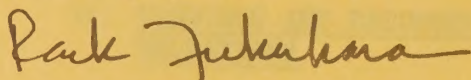
ACKNOWLEDGMENT

The personnel in the Building Inspection section have cooperated fully during the data collection and the process of validating conclusions drawn by the WPPMS analyst. The completion of the report would have been impossible without these inputs, feedback, and positive attitude.

The cities of Hayward, Palo Alto, Riverside, Sunnyvale, and City X in California, and Phoenix, Arizona, furnished statistical data and other information that was used by the project analyst. Appreciation must be extended to Richard A. Hughes, management consultant, whose technical assistance helped guide the project to completion. The efforts of the personnel in the Word Processing Center and in Reproduction Services to meet schedules and to prepare a quality work product should also be well recognized.

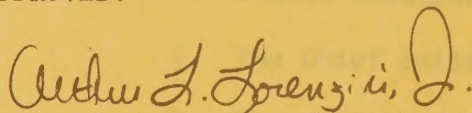
RECOMMENDATION

Receive the report and consider the implementation of the methods improvements and staffing system.



RACK FUKUHARA
Administrative Assistant I
WPPMS Project Analyst

APPROVED:



ARTHUR L. LORENZINI, JR.
Administrative Assistant II
WPPMS Project Manager

Attch.

cc: Community/Economic Development Manager
Management Services Director
Public Works Director
Acting Chief Building Official
Senior Building Inspector
Building Inspection Personnel (5 copies)

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CHAPTER I
A PERSPECTIVE OF THE BUILDING
INSPECTION PROGRAM

BACKGROUND OF THE STUDY

An objective of the Work Planning and Performance Monitoring System staff was to complete an operations evaluation of the Building Inspection program. This project was begun in November, 1974 with preliminary data gathering, and the majority of the research and analysis was completed during the Spring of 1975. This report contains findings and recommendations resultings from this study.

The City of Fremont administration has been restructured since the WPPMS study began. The former Community Development Department, composed of Planning and Building Inspection, has been consolidated with Public Works to create the Community and Economic Development Department; and Building Inspection has been placed under the jurisdiction of the Public Works Director. These administrative changes have not altered operations within the Building Inspection function, and the WPPMS study has not been affected.

ANALYTICAL METHODS USED IN THE STUDY

The rationale for the WPPMS diagnostic appraisal is to develop an understanding of the work processes and operations of a City agency for the purpose of exploring and recommending opportunities for improving productivity. The means for inquiry and analysis are a product of the following techniques:

- . Observations of Field and Office Operations
- . Application of Industrial Engineering Principles
- . Work Activity Studies
- . Interviews with the Staff
- . Analysis of Staff Level Trends and Capacity
- . Work Volume Evaluation
- . Budget Review
- . Analysis of the Building Inspection Records and Statistics

In preparation for the analytical process, key Building Inspection personnel were requested to develop an issues list, which provided direction for the WPPMS team. The complete list is provided in Attachment A. It should be noted that many of the issues were addressed in the Planning and Development Organization diagnostic appraisals completed earlier this year.

DESCRIPTION OF THE BUILDING INSPECTION PROGRAM

Building Inspection in the Public Works Division of the Community/Economic Development Department, has as its primary functions the enforcement of the Uniform Building and Plumbing Codes, and the National Electrical Code in all new and remodeled structures; the enforcement of use and occupancy standards in commercial structures; the maintenance of building, plumbing and electrical codes; and the identification and monitoring of abatement of substandard dwellings. In addition to these basic functions, this

organizational unit issues building permits and a variety of other types of permits, enforces several abatement programs, and is involved with the preservation of community standards in such areas as signs, zoning enforcement, and earthquake safety.

The Building Inspection section is subdivided into two areas: Plan Review and Building Inspection. Management direction is provided by the Chief Building Official. The goals, objectives, and work program for these two areas, as they are described in the City budget, are presented below:

1. Plan Review

The overall purpose of this process is to review plans for proposed construction within the City in order to assure compliance with the applicable code regulations which provide minimum standards to safeguard life or limb, health, property, and public welfare for all persons in the City.

The objectives of staff committed to plan reviews are as follows:

- a. Provide leadership, direction, and general administrative support necessary for an effective and efficient plan review and zoning enforcement program.
- b. Develop and coordinate policies and procedures, streamline permit issuance procedures, design and draft plan checking aides such as checklists, application forms, etc., to improve the plan checking and zoning enforcement program.
- c. Provide technical assistance to architects, engineers, contractors, and home owners on matters pertaining to building plans, zoning regulations, planned unit development regulations, geological hazard regulations, State of California regulations pertaining to mobilehomes, insulation standards, access for physically handicapped persons, and other similar matters.
- d. Maintain a reasonable program to insure continued compliance by all property owners with building and zoning regulations applicable to their property.
- e. Review and revise codes to maintain the building regulations in the City as the most up-to-date regulations available, and to conform with all federal, state and local requirements.
- f. Issue building, electrical, plumbing, mechanical, and other permits as required.

The work program of plan review can be summarized as follows:

- . Administration: Provides administrative planning and direction for personnel performing plan check activities, reviews and updates codes and initiates code amendments and/or consideration of amendments for adoption.
- . Public Information Counter: Receives, reviews, and processes applications for plan checks for which this section is the issuing authority, provides information on code requirements to the public at the counter and via telephone, coordinates issuance of permits which require review by other governmental agencies under zoning, building or municipal code provisions, reviews

applications for business tax receipts to determine compliance with zoning regulations, issues permits where no plan checking is required, and prepares reports as necessary.

- Plan Checking: Involves complete plan checking of all plans submitted.
- Zoning Administration: Reviews permit applications for zoning compliance, processes zoning permit applications, and conducts such field inspections as may be necessary to insure compliance with zoning provisions.
- Sign Regulations: Receives, reviews, and processes applications to erect signs, issues permit authorizations, and performs necessary field inspections to determine compliance with detailed regulations and approved plans and specifications.
- Conditional Use Permits: Provides continuing surveillance of conditional uses to obtain compliance with use permit conditions and all other applicable regulations.

2. Building Inspection

The overall purpose of the building inspection staff is to inspect all structures being built within the City in order to assure compliance with the applicable code regulations which provide minimum standards to safeguard life or limb, health, property, and public welfare for all persons in the City.

The objectives of staff working in building inspection are as follows:

- a. Establish and enforce regulations relating to building and zoning inspection and enforcement.
- b. Conduct all inspections within 24 hours of the date requested.
- c. Notify all permit holders of permit cancellations where no activity has been taken within 120 days of permit issuance.
- d. Inspect all dwelling units or property for which a complaint is received within a reasonable time after complaint is filed.
- e. Establish and maintain accurate records which preserve actions taken by Building Inspection section personnel for future review and possible use as evidence in legal actions.
- f. Coordinate occupancy clearances and releases with other City organizations and public and private agencies.

The work program of building inspection can be summarized, as follows:

- Administration: Provides supervision of field inspection personnel, reviews and evaluates workload and personnel assignments, and coordinates training of field inspection personnel to keep abreast of changing technology in the building construction industry.

- Public Information Counter: Receives and reviews applications for electrical plumbing and/or mechanical plan reviews, meets with the public to discuss questions or problems arising during construction of projects.
- Field Inspections: Performs inspections to determine compliance with zoning regulations, conditional use permits, building, electrical, mechanical and plumbing codes, and related laws and regulations of certain other agencies.
- Nonconforming Uses: Investigates and ascertains continued performance of all nonconforming use regulations.

EXPENDITURES, STAFFING, AND WORKLOAD TRENDS

The key items listed below are taken from the information contained in Attachments B, C, D, and E, which are included in the Appendix.

- Over the past five years the Building Inspection and Plan Review Budget has increased 16.45% from \$189,411 in FY 1969/70 to \$220,578 in FY 1974/75; an 3.29% annual increase. During the same period the percentage of the total City operating budget allotted to Building Inspection has decreased from 2.7% to 1.1%.
- From FY 1969/70 to FY 1974/75 the revenue derived from plan checking and permit fees has exceeded the actual operating expenditures, although the latter does not include city overhead costs for capital equipment.
- The following table demonstrates the fluctuations in the number of permits issued and the valuation of construction authorized by the City in comparison to the authorized personnel and the filled building inspection positions. The dynamic nature of the short term economic cycle is apparent, as well as the accompanying decline in the number of filled inspection positions to service the building activity.

<u>Fiscal Year</u>	<u>Total Permits Issued</u>	<u>Valuations in \$1,000</u>	<u>Authorized Personnel</u>	<u>Filled Positions</u>
69/70	6,822	\$ 39,871	13	13
70/71	10,146	62,120	12	12
71/72	13,230	62,850	12	12
72/73	6,843	41,239	12	12
73/74	5,060	26,944	12	11
74/75*	5,194	34,540	12	10

* 11 months

This chapter has summarized the overall work program of the Building Inspection section. The following chapters describe the WPPMS evaluation of the performance of this program and recommendations for improving operations.

CHAPTER II

FINDINGS AND RECOMMENDATIONS ON BUILDING INSPECTION OPERATIONS

The emphasis of this diagnostic appraisal has been to identify opportunities for improvement in the Building Inspection program; consequently, this report presents constructive criticism of the operations. In addition, many strengths in current operations have been found and some have been highlighted where appropriate.

POSITIVE FEATURES IN EXISTING OPERATIONS

Examples of positive features which exist in the operations of the Building Inspection section are summarized below:

- The field inspectors are deployed as combination or generalist inspectors. The person, holding the classification Building Inspector, possesses general proficiency in residential building, electrical, mechanical, plumbing, and other types of inspections. This provides for more efficient staffing, because one inspector performs a combination of inspections, and only one individual need be assigned to a construction site, rather than assigning the various specialists to make numerous trips and engage in unproductive travel time. For complex industrial and commercial inspections, the Building Inspector Specialists are employed. However, they also can perform combination residential inspections and provide technical assistance for problems that arise in the field.
- The Building Inspection personnel generally exhibit a high degree of interest in their chosen profession. This was in evidence in work observations by the WPPMS team, in the inspectors' pursuit of relevant training and education on their own time, their participation in professional organizations and code writing bodies, and a willingness to put forth extra effort to perform well.
- Building Inspection personnel are fully aware of the responsibilities of public service, and they attempt to honor demands for services, both in the field and in the office. Timely inspections are necessary to insure that contractors' schedules are met. For example, if a request is made for a forms inspection, the inspector realizes that the "concrete won't keep" and makes a point of covering it. Another example would be the public relations an inspector will exercise to explain a technical problem with the non-professional builder (i.e., a do-it-yourselfer), who may not be familiar with sound construction practices and the applicable codes.
- Interpersonal communications among the BI staff are generally open and direct. Consequently, problems are usually discussed and resolved candidly and expeditiously.
- Building Inspectors attempt to balance workload by recalling backlogged permits during the slower winter months. The benefit of this program is the assurance that construction completed, but not inspected, will be inspected; and inactive permits will be voided.

- . The Acting Chief Building Official has begun implementation of a system for monitoring special project staff assignments. This system, designed and maintained by the BI Secretary, was instituted to avoid due date slippages and to identify the workload of the staff for planning and control purposes.
- . The Senior Building Inspector has instituted a supervisory ride-a-long program for the field inspectors.
- . Building Inspection files have been debulked to reduce the need for higher cost storage space and equipment.
- . The Building Inspection section maintains more comprehensive workload statistics than most other cities.

FINDINGS AND RECOMMENDATIONS FOR IMPROVING OPERATIONS

Improvements in the operations of the Building Inspection section must be considered in light of the following economic conditions, which affect staffing, workload, and operating requirements.

- . The development construction occurring in the City of Fremont is directly linked to the fluctuations of the economy of the San Francisco Bay Area and the economy of the nation as a whole. These cycles are unpredictable, even to economic experts; and the period separating boom years and recessed years can be as short as two years.

No immediate and continuing relief from the building recession is forecast by market consultants at this time. However, in contradiction to this trend is the neighboring City of San Jose, where construction measured by valuation presently exceeds the previous year by 200%, and positive signs for recovery are also occurring in Fremont.

- . The valuation of construction authorized has decreased in Fremont 57%; from almost \$63 million in the boom year FY 1971/72 to \$27 million in FY 1973/74. The projected valuation total for FY 1974/75 is \$35 million, a \$8 million increase over FY 1973/74.

1. Public Relations

Public relations in the building inspection function are particularly acute due to the fact that it is a regulatory agency and citizens must come to it whether they want to or not. In addition to imposing requirements upon the citizens, they are required to pay special fees for the service. For these two reasons, individuals in the organization must possess the ability to function properly in situations which might, at times, be trying. An understanding of the diverse emotions which will be encountered from applicants is important for maintaining proper public relations.

- Observations at the public information counter show that the clerical staff and the office inspectors attempt to provide quick and courteous service. However, situations occurred where the counter was without a "receptionist" and public clients did not receive prompt attention. These lapses in attention could be easily corrected by instituting a "buddy system" to cover absences.
- Observations in the field revealed a proper, business-like relationship. On occasion, inspectors are abused (verbally), and it requires a high degree of restraint to avoid a confrontation with the public. By and large, the field inspectors display this tact.
- The name "Building Inspection" represents a narrow program focus that belies the broader scope of the City of Fremont Building Inspection program. The section is considering a name change to incorporate a sense of the full range of activities and foster a positive public image.

The public information program for Building Inspection is dormant, and a promotional campaign to explain the purpose, benefits, and activities of the section should be considered. At the very least, an informational handout bulletin should be prepared for distribution. This document would explain in lay language, where and when building inspection services enter citizens' lives and protect their safety and well being.

2. The Chief Building Official

The Chief Building Official (CBO) position, the managerial/administrative head of Building Inspection was vacated in mid 1974, and the Senior Building Inspector (Plan Checker) has been appointed acting CBO. This appointment has caused the reallocation and shifting of the CBO workload. A spillover benefit has been the delegation of tasks, and routine decisions that had been withheld by the former CBO are now being performed at more appropriate levels in the organization.

In addition to administration, the acting Chief Building Official performs all commercial and industrial plan checking, which originates in the Development Organization (DO). Consequently, the plan checker is primarily occupied with DO projects and must assume the DO priorities. The Planning and Development Organization WPPMS diagnostics have recommended making a plan checker a member of the DO. If this were to occur a void would be created in Building Inspection. Backup personnel should be trained to provide reserve plan checking capabilities, and the Chief Building Official slot should be permanently filled.

The selection of the CBO should follow the appointment of a permanent Public Works Director (City Engineer) so that that individual could participate in the selection of a key subordinate, the Chief Building Official. The employment of a CBO with the experience and/or educational job specification, a graduate civil engineer, should decrease the potential for liability in claims against the City's plan checking.

- The industrial and commercial plan checker presently uses a calculator which does not have program step retention capabilities. The purchase of a programmable calculator (or access to a scientific computer) would increase

efficiency and accuracy. The cost of this calculator would be approximately \$700. The present calculator could be used for residential plan checking, and by a plan check engineer in training.

3. Use of Outside Engineers on a Contractual Basis when Heavy Plan Checking Backlogs Exist.

A major factor which affects the time needed to complete a plan check is the backlog of plans requiring processing by Building Inspection. Plans are generally reviewed in the order received. As a result, in periods when construction work is heavy, plan checking backlogs will correspondingly increase the amount of elapsed time needed for plan checking.

Several options exist to reduce these backlogs: Using a building inspector (which sometimes is done) to assist in plan checking; adding staff (which is not economical given the fluctuations of plan checking workloads); using the plan checking services of the ICBO located in Los Angeles (which takes about five weeks); or using outside engineers, on a part-time, contractual basis, to help reduce the backlog.

This last option, using contractual engineers, is the best available stopgap to keep plan checking backlogs under control and expedited, so long as there is no trained, qualified, reserve plan checker.

However, for this option to work, a plan checking "backlog control" system needs to be formalized. In simple terms, on a weekly basis, the Chief Building Official and the Development Organization Supervisor need to:

- . Agree on the priorities assigned to the plan checks to be performed.
- . Forecast the number of backlogged plans for how long, and estimate person days of plan checking time needed to process each one and in total.
- . Determine staff time available for plan checking (deducting vacations, holidays, time needed for other work, and so on) and who is responsible for each plan check and the sequence each one will be handled.
- . Array these data on a week-to-week schedule into the future and compare it to the "time target" for processing submitted plans (like two or three weeks).
- . Determine where "contractual" plan checking support is needed to achieve "target" processing times.

Generally, "contractual" plan checking assistance will be needed when particularly complex plans have been submitted that will elongate and distort normal processing times until they have been completed. It should be noted that the use of contract engineers is not a panacea to the backlog problem, because the

regular City plan checker must become familiar with the plan, author the plan check letter, and assume responsibility for making decisions on the discretionary elements of a plan.

4. Determination of Field Inspection Workload

The activities of the Building Inspection Division have not been subject to workload measurement in the past, and as a result, no guidelines exist for determining the relationship of staffing requirements to workload. During the course of this study a serious effort was made to measure work requirements and to relate these to staffing needs. Direct observations were made of all personnel and the performance of each major type of activity. In addition, field inspections were measured by compiling the monthly log of activities and time by individual building inspectors. The following is an analysis of these observations. A compilation of the workload data is contained in Attachment F.

- New residential construction inspections usually occur in tract developments with repetitive housing designs. Consequently, the assigned inspector becomes familiar with the inspection requirements; and within a small traveling radius, the inspector may accumulate as above-average inspection rate.
- The International Conference of Building Officials (ICBO) has suggested that a rule of thumb for staffing in cities can be determined by allotting one building inspection staff member for each \$2 million of valuations in permits issued. The WPPMS staff found no discernable relationship between staffing levels and valuations. For example, whether a residential dwelling unit is valued at \$30,000 or \$50,000, the inspection requirements are generally the same. A relationship may exist between expected inspection workload and commercial and industrial valuation, however, this was not investigated.
- The total number of building permits has declined 48% from 3227 in FY 1971/72 to 1672 in FY 1973/74. The projected total for FY 1974/75 is 2100, a 25% increase over FY 1973/74.
- During the last two and a half years, the ratio of inspections to permits issued has varied from 5.4 during the last six months of FY 1972/73 to 6.7 in FY 1973/74 to 6.1 in the first eleven months of FY 1974/75. The increase can be misinterpreted, because the method for counting inspections has changed during the period, but it would appear that the real number of inspections has increased per permit issued. One factor which could help to explain the increase in inspections per permit issued is the opportunity for the field inspectors to pursue "preventative inspections." This type of inspection differs from a "called for inspection" or "follow-up" inspection because it is not usually initiated by a contractor's or citizen's request. A preventative inspection is an inspection to observe the construction progress on a job site to provide technical assistance and to insure that the codes are being followed. The preventative inspection is a legitimate function. For example, if an inspector makes a preventative inspection and finds that the electrical work in progress does not meet the code requirements, this

can be corrected before the job is completed, thereby avoiding costly final labor and materials replacement.

- . Notwithstanding the potential but undocumented benefits of preventative inspections and the more numerous inspections required for large industrial and commercial jobs, the relatively high ratio of inspections per permit issued cannot be fully explained. The building inspectors indicate and can substantiate that five to six inspection stops are required for a residential building. Requirements for commercial and industrial inspections vary with the size and complexity of the job, and valid arguments can be presented for assigning an inspector full time to large job sites. The building inspectors express the concern that some contractors might cut corners, and they maintain a wary eye on all construction practices and materials. Additional "preventative" inspections are the cost of this vigilance.
- . Comparing the ratio of inspections per permit issued with other California cities, finds Fremont having the highest ratio. However, consideration must be given to variations in counting methods as there are no universally accepted standards and jurisdictions develop standards separately. The greatest difference occurs between Fremont and Palo Alto, which is due to the high percentage of permits issued in the latter city for residential additions and alterations. See Attachment G for the comparative charts.
- . Considering the number of one and two inspection permits (i.e., zoning and insulation), the number of permits carried forward from previous years, due to no or only little construction activity, and reinspections it is reasonable to conclude that the City of Fremont is probably performing more inspections than are necessary, based upon data collected from other California cities.

For example, the City of Los Angeles has determined that on an average five building inspections are generated for each building permit issued, and the number of inspections required per electrical, mechanical, and plumbing permits is less than 2.6.

- . With the advent of additional State-mandated inspections for insulation and footings, the WPPMS staff has concluded that five inspections be considered the guideline for determining an acceptable service level for the City's building inspection activities and for determining future staffing needs for field inspectors.
- . The current procedure for collecting inspection data was reviewed and the following changes are recommended for implementation:
 - Establish a uniform procedure for counting the types of inspections and the time devoted to these activities. This procedure would be explained to the inspectors, and all daily and monthly reports would contain consistent information for all the inspectors.

- Indicate the method of initiating the inspection performed in the following categories:
 - .. Called for inspection
 - .. Reinspection (follow-up)
 - .. Complaint Investigation
 - .. Uncalled (self-initiated, preventative) inspection
- Maintain a statistical record of the above categories on a monthly basis.
- . The "average" inspection rate in Fremont is five inspections per hour or 12 minutes for each inspection including travel time.

The "average time" compares favorably with the engineered standards for Phoenix's General Building Inspections, which occur at the rate of 4.85 per hour (12.4 minutes/inspection) at 100% utilization. It should be noted that the time standards for inspections in Palo Alto represents 24.2 minutes (14.5 minutes for the inspection and 9.7 minutes for travel), which is twice as high as Fremont's.

The City of Fremont building inspection counting standard consists of a 20-minute unit, and considering the divergent data available it is difficult to determine the time required to perform an adequate inspection. The most definitive statement that can be made is that the average inspection time, 12 minutes, in Fremont is below standards established by some other jurisdictions. Whether this is real efficiency or a sacrifice of effectiveness (i.e., quality of each inspection) is open to question. Exhibit 1, on the following page, represents a typical work day for a field inspector. It summarizes information that is contained throughout this report. The second half of Exhibit 1 presents a mix of inspections that would typically be required to complete a residential dwelling. It demonstrates that more than one inspection usually occurs at an inspection stop. Stops with multiple inspections also compound the travel time per inspection stop into a more realistic figure considering the geographical area of the City.

ONE FIELD INSPECTOR'S HYPOTHETICAL WORK DAY

	<u>Minutes</u>	or	<u>Hours</u>
Time in Office	144		2.4
Time in Field	<u>336</u>		<u>5.6</u>
Inspections	222		3.7
Travel	114		1.9
TOTAL	<u>480</u>		<u>8.0</u>

Average Time per Inspection and Travel

Inspection	7.9	0.13
Travel	<u>4.1</u>	<u>0.07</u>
TOTAL	12.0	0.20

Inspections per Day	28
Inspections per Hour	5
Travel per Day	37.7 miles
Travel per Inspection	1.35 miles
Rate of Travel	19.34 mph

MIX OF INSPECTIONS REQUIRED TO COMPLETE
A RESIDENTIAL DWELLING UNIT

<u>Stop No.</u>	<u>Building</u>	<u>Electrical</u>	<u>Type of Called Inspection</u>			<u>Other</u>
			<u>Mechanical</u>	<u>Plumbing</u>		
1	Foundation/ Forms					Zoning/ Siting
2	Girders/ Joist	Underground	Underfloor	Underfloor		
3	Frame	Rough	Rough	Rough		
4	Exterior Lath			Gas line		
5	Interior Lath	Utility Co.	Gas Test	Sewer/ Utility Co.		Insulation
6	Final	Final	Final	Final		

Total Inspections = 21.

5. Reduction of Reinspection Requirements

A percentage of all calls currently being made to job sites by inspectors result in a requirement for reinspection. These result from the indicated work not having been completed, failure of work to meet established code, failure of the contractor to appear at the appointed time, and other reasons. Possibly these reinspections contribute to the high ratio of inspections per permit.

It should be possible to reduce this reinspection frequency through a planned effort. This should involve several steps.

- Reaffirm the present regulations regarding reinspections. These provide the section with the power to levy a fee for each instance of reinspection.
- Orient the building trades operating in Fremont to call for inspections only when they can guarantee that the work is complete and ready for an inspection.
- Provide each building permit recipient with a statement of this rule including affirmation of the intent to enforce it, and a brief statement of how it is to be enforced.
- Apply the rule, exercising basic judgment regarding the degree of its application. Since the intent of the rule is to reduce inspection workload, not to generate revenue, it follows that it will not be universally applied. It is recommended that each inspector record the name of the contractor or the building requiring the reinspection in a daily log. These records should be reviewed weekly by the Chief Building Official or supervisor. From this review, a pattern of repeated "offenders" should emerge. A decision should be made by the Chief Building Official to apply the rule to those contractors for whom a consistent pattern emerges. Direct contact of the individual should be made by the Chief Building Official prior to the application of the rule in an effort to secure his cooperation. All inspectors should be notified of those contractors whose record is poor, so that they can solicit the cooperation of job-site foremen and personnel. Good public relations practices would preclude use of threats, but failing to secure cooperation should be sufficient cause for levying the penalty.

If these sanctions become necessary, it should merely be necessary to notify the contractor that he will be required to pay the penalty before another inspection can be made, post this to the inspector's log, and exercise sufficient follow-up to assure that inspections are not being circumvented.

- Summarize reinspection requirements on a weekly basis, expressing these requirements as a percentage of total inspections. This will provide visibility of reinspection requirements and permit the development of other steps required to affect a reduction.
- Establish a target level of reinspection for use as a management objective. Plans designed to attain this target level should be developed, reviewed, and periodically updated.

6. Field Inspection Transportation

The City of Fremont comprises a large land area of almost 100 square miles, the result of consolidating several smaller communities. This product of historical geography necessitates that marginal efficiencies in transportation and travel for the building inspectors in the field. Efficiencies are realized through inspection route planning and by the supervisor assigning projects by general location.

- . The 1974 total vehicle mileage for the five assigned building inspection vehicles was 40,715 miles, which computes to an average 37.7 miles driven per work day per automobile. The total does not include the mileage accrued by the staff using City pool vehicles. See Attachment H for details on vehicle utilization.

Applying the City of Phoenix, Arizona, engineered time standards for hours spent in travel (a rate of 19.34 mph), the daily average travel time accounts for 1.95 inspector hours per day per vehicle, or a total of 1.2 inspector years absorbed annually.

- . The field inspectors are required to pick up and return the vehicle keys at the start and end of each working day. These trips are a waste of time, and motion, as the automobiles are infrequently left for pool use. An improved procedure would have a clerk retrieving the keys on Monday and returning them on Friday, daily checkout would occur within the section, if a revised vehicle procedure is not implemented.

The five vehicles assigned to Building Inspection are full size four-door sedans. These are too large for the duties involved, which are primarily one occupant trips with equipment carried in a small valise. As these cars are retired from the City vehicle pool or transferred to other duties, they should be replaced with subcompacts. This change would provide for future vehicle cost and upkeep savings.

Each of the five vehicles is equipped with a two-way radio with direct communications to the City Government Building. These radios are a convenience rather than a necessity, because the field inspectors report back to the CGB two to three times a day. If alterations in field deployment are adopted, the radio could attain higher utilization, which would substantiate their need, however, if no additional use of the radios is planned, they could be reallocated to other City vehicles.

7. Assignment of Field Inspectors to Geographic Districts.

One of the issues to be addressed by the WPPMS team was a system for assigning field inspectors to geographic districts. The intended benefits were to reduce travel related costs, and increase the time devoted to inspections.

The present system of distributing work by functional design (i.e., residential tracts, remodeling, custom homes, signs, commercial, and industrial) is the most workable approach at present, as the City staff and workloads are not large enough to realize substantial efficiency gains. For example:

- . New residential construction is occurring in one general location of the City on Mission Boulevard, making it more efficient to assign one inspector to this area.
- . It would be difficult to schedule and control combination inspectors in a mix of new construction and additions and alterations, because of the varying times necessary to complete both types of jobs, and only the specialists are qualified to inspect complex industrial and commercial sites.

The only utility of geographic districts would be for "preventative patrol" during slack activity hours to insure against and abate construction in progress without permits. In this instance, familiarity with a given area would provide the knowledge necessary for successful surveillance.

Preventative patrol within assigned geographical areas should only be considered as a program option to increase the utilization of field inspection personnel.

8. Centralized Scheduling and Control of Field Inspectors

An opportunity exists to more effectively plan and control the utilization of the time spent by field inspection personnel. This opportunity can be achieved by taking two interrelated steps:

- . Reducing the time field inspectors now spend in the office, and
- . Assigning the responsibility to the Senior Building Inspector to centrally schedule field inspections for all personnel.

This approach is described below. A detailed explanation of this procedure is provided in Attachment I, which appears in the Appendix.

Currently, the five field inspectors spend an average of 2.4 hours per day per person in the office. This time is spent in various ways including:

- . At the start of the work day, inspectors generally receive and return phone calls, set their schedule for the day, answer applicant questions, and so on.
- . After lunch, inspectors generally handle "rush" calls, confer, and so on.
- . In the late afternoon, inspectors post inspections to their permit books and office files, place and receive calls, process paper work, and so on.

Coming to the office for these activities is a common practice in building inspection units, and it is usually done so that permit applicants and contractors can readily communicate with inspectors, since they know the City staff is in the office at these specified times.

It should be possible to reduce this office time by at least 50% by taking the following measures:

- Placing the Senior Building Inspector in the position of scheduling most inspections for the next day and beyond.

Following this procedure, the Senior Building Inspector (SBI) would supervise and maintain a master schedule by day of the week divided into 12 minute intervals for each of the field inspectors. As calls for inspections are made, the SBI would schedule and post them by day and time based on: each inspector's tract or functional assignment, geographical location; estimated time required for the inspection stop; and the workload of each inspector. Since permit applicants are supposed to allow 48 hours notice, it should be possible to schedule 80% of all status inspections two days in advance.

At present the request/inspection turnaround objective is 24 hours. This service level would need to be extended to fully accomodate the scheduling system. This is a policy decision. If the response time is maintained at the one day standard, less rigorous scheduling can be accomplished, however, the system would still be functional and beneficial.

- Restrict field inspectors office time to the one hour from 4:00 to 5:00 p.m. each afternoon.

During this time period, each inspector would receive the inspection schedule for the next day and revise it as required to take into account necessary follow up inspections that the Senior Building Inspector may not be aware of. Also, when it is found that schedule gaps exist, the Senior could schedule "preventative" inspections. In addition, this time would be utilized for record keeping, conferences and other miscellaneous activities.

- Permit inspectors to take their vehicles home at night so they can report directly to the job site in the morning.

With centralized scheduling, each field inspector should be allowed to take the assigned City vehicle home so the inspector can report directly to the first inspection site at the beginning of the work day. The operating costs of this "take home" policy should be offset by the reduced number of trips that each inspector now makes to the City Government Building under current practices. Also, it has been found in certain other cities that employees tend to take better care of their vehicles when they are permanently assigned to them. Unauthorized use of City vehicles could be monitored by periodically checking the mileage of building inspection vehicles against travel norms. If the inspectors are not allowed to take their vehicles home at night, the daily inspection schedule would be adjusted by one less inspection per day per inspector.

The advantages of this revised system for planning and scheduling field inspectors include the following:

- An average of 1.2 additional hours per field inspector per day should be available for handling inspection workloads. Consequently more inspections can be accomplished.
- Workloads among field inspectors can be supervised for better balance.
- The number of "self initiated" preventative inspections can be better controlled and monitored.
- The system will allow for additional batching of inspections by geographical area, and this should reduce unproductive travel time which occurs to some degree.

When occasional "rush" inspections are required, inspectors may be contacted in the field in a number of ways. These include: (1) using the two-way vehicle radios; (2) leaving a message at a scheduled inspection stop for the inspector to call in; and (3) implementing a procedure for the inspectors to telephone the office from a public telephone at a prescribed time. In immediate situations the office staff and the supervising Senior Building Inspector could be directed to handle the call for service.

Permit applicants would need to be oriented to this new work scheduling procedure prior to its implementation.

9. Office Operations

The work of the field inspectors is subject to reasonably precise measurement because of the monthly inspection activity documentation reports. Unfortunately, the same cannot be stated for the office operations. Only limited work volume data presently are being collected. Since 60% of the total professional staff hours available are spent at the City Government Building, it is important to determine what is being accomplished there.

To supplement the work distribution chart derived from a ten-day record of daily activity logging (see Attachment XI), a four-day work sampling exercise was administered in May, 1975, to establish public counter demands and office staff requirements. A summary of this exercise is presented as an office inspector's hypothetical work day, Exhibit 2. This data represents a synthesis of three office positions: one Building Inspector Specialist, and two Building Inspectors. The task breakdown corresponds favorably with the results of the earlier work distribution. The only significant variations are caused by the clearer task definitions declared in the work sampling. The lower portion of Exhibit 2 contains a summary of the public counter demands by hour of the day.

This sample of inquiries does not indicate a cyclical pattern of demand. The number of inquiries rises slightly around the noon hour, but as the office inspectors state, "It is either feast or famine." Using the standard of 34 inquiries per day (and not all counter inquiries are addressed by the office building inspectors) with an average elapsed time of eleven and a half minutes, the demand at the public counter can be satisfied by one person. Placing one inspector responsible for all routine counter work (with reserve assistance) would inconvenience walk-in clients. They may be required to wait in line. If this situation can be tolerated, the other office personnel will increase efficiency, because they will not suffer as high an interruption factor.

A policy decision needs to address whether to: (1) staff for the average demand with high staff utilization, or (2) staff for the peak demand and accept a degree of slack in the utilization level.

- . The three non-management office inspectors also prepare monthly activity reports, and these data were studied and tabulated for calendar year 1974. The office activities accounted for 2.6 inspector work years. However, the work volume and hour allocations are not precisely accounted by the inspectors. For instance, one Building Inspector consistently accrued exactly 200 phone calls each month. Compiling the total time attributed to telephone calls, an average of 11 minutes per telephone communication was derived. The Phoenix, Arizona, Building Inspection telephone inquiry time standard for office personnel is 4.1 minutes per call; and the City of Palo Alto guidelines for general public service phone call duration is three minutes. The City of Fremont's 11-minute average indicates that calls for building inspection information are either complex and time consuming, or the time spent in this activity is exaggerated. The WPPMS analyst would also question the accuracy of all the activity data contained in the office inspector's monthly reports. The office personnel, to include management and the plan checker, must log daily activities for the monthly report to become a valid record of workload for management planning and control.
- . The daily activity report should account for work item volume and the time spent in each task. This would be similar to the reporting system employed by the field inspectors.

ONE OFFICE INSPECTOR'S HYPOTHETICAL WORK DAY

<u>Activity</u>	<u>% of Work Day</u>	<u>Minutes</u>	<u>or</u>	<u>Hours</u>
Desk Work (reading & writing)	5.0	24		0.4
Office Trips	2.1	10		0.2
Plan Checking	10.0	48		0.8
Public Counter Inquiry	21.7	104		1.7
Reviewing Permits and Files	3.1	15		0.2
Staff Discussions	7.3	35		0.6
Telephone	8.5	41		0.7
Miscellaneous Tasks	1.9	9		0.1
Field Work	5.8	28		0.5
Non-Productive Time	<u>34.6</u>	<u>166</u>		<u>2.8</u>
TOTAL	100%	480		8.0

Average number of counter inquiries responded to equals 9.

INCIDENCE OF BUILDING INSPECTION PUBLIC
COUNTER INQUIRIES BY HOUR OF THE DAY

<u>Hour</u>	<u>Number of Public Four Day Sample</u>	<u>Counter Inquiries Average Per Day</u>
8 a.m.	14	4
9 a.m.	20	5
10 a.m.	16	4
11 a.m.	19	5
1 p.m.	27	7
2 p.m.	13	3
3 p.m.	17	4
4 p.m.	<u>10</u>	<u>2</u>
TOTAL	136	34

The elapsed time for 99 of the 136 counter inquiries totaled 18.88 hours (1133 minutes). The average time per counter inquiry was 0.19 hours or 11.44 minutes.

10. Improvements to Office Facilities

Observation of office activities, review of individual time logs, and interviews with staff members indicate that interruptions (i.e., telephone calls, walk-ins requesting counter service, etc.) result in lost work time.

- . Interruptions are not totally unproductive because they represent responses to requests for services.
- . They are, however, more disruptive than necessary because of office layout.
- . Negative office layout factors contributing to the disruption caused by telephone calls and walk-ins include the following:
 - The "bull-pen" working atmosphere exposes the clerical and professional staff to numerous work distractions. The ripple effect of interruptions (negative impact on efficiency of staff not directly handling a call or walk-in) reduces productivity throughout the staff, because they are not insulated from the disturbance. Analysis in other cities indicates the ripple effect reduces administrative utilization by at least 15%.
 - The "bull-pen" atmosphere is amplified by the joint use of the public counter by planning and building inspection. While there is certainly overlap between the two functions, and usefulness in sharing materials, confusion results in distinguishing whether a planner or building inspector should respond to a client.
 - An associated problem is the cumbersome process to retrieve, and sometimes locate, an inspector for the public counter, when they are away from their desks or busy with other tasks (i.e., plan checks).
 - Visual public intrusion into the professional work area limits the privacy of the staff, and increases public anticipation for service because staff members can be readily observed.
 - No formal system, other than the signout sheet, exists for regulating absences from the work area. The need for backup personnel should be anticipated, prepared for, and controlled to avoid zero service availability.

The reception, public counter, and working area of the building inspection space allocation should be improved by partitioning the areas for privacy; thereby limiting public intrusion and creating a business-like work environment. The following improvement options should be considered in future floor plan designs:

- . Providing a separate reception/switchboard area for initial public contact and a waiting room facility.
- . Screening the public counter from the work area to control public scrutiny of the City staff.

- Positioning one Building Inspector at the public counter to accommodate walk-ins and telephone inquiries. This public information assignment should be switched weekly with a backup inspector, and rotated among the entire inspection staff periodically, but at no more than six-month intervals.

Assigning an inspector to the counter will limit intra-office phone calls and travel (15-20 steps), and this placement permits immediate service.

Additional options for improving the facilities include:

- Providing large readable signs and floor plan maps for directing the public to the building inspection and other City offices. Some confusion has been observed when people arrive on the third floor by elevator and do not know which way to proceed. A sign identifying the door to the Building Inspection office also would be helpful.
- Elements of plan checking are performed by all professional classifications, however, the equipment and space for this activity is inadequate. A second table, large enough to work on the construction plans, is a minimum requirement; a complementary requirement is the office space for the table.
- One improvement to office operations already considered and scheduled for installation is a centrex telephone system to replace the inadequate switchboard for planning and building inspection. This will simplify office communications, reduce the noise of ringing telephones, and ease the responsibilities of the receptionist.
- The former Community Development clerical pool has been divided into Planning and Building Inspection, but overlapping assignments continue to exist. These relationships should be clarified to avoid future organizational inconsistencies.
- With a two-position clerical staff, Secretary and Senior Clerk Typist, backup personnel and reserve capacity could become important to cover absences. The development of written clerical procedures and backup training are a necessity, and an immediate concern for preventing work output losses.

11. Institute a Single Permit System

Fremont, like most California cities, employs a multiple permit system. In operations, this means that separate permits are required for each of the major types of work on any given construction project: building, electrical, mechanical, and plumbing. During the first eleven months of fiscal year 1974/75, at total of 5,194 permits were issued, including: building, 1,922; electrical, 1,207; mechanical, 868; plumbing, 980; and other, 217.

A number of cities (e.g., Phoenix, Arizona) have instituted a single permit system. In addition, staff at the International Conference of Building Officials have indicated this system has advantages over the traditional multi-permit process. Under this approach, a single permit is issued to the prime contractor involved in a construction project (that person or firm who contracted with the owner to build the project). Key advantages of the single permit system include the following:

- . One person or firm, the prime contractor, is responsible for the entire job and has the control necessary to meet that responsibility. This helps the owner and the Building Inspection section as well, and it should save everyone's time. In addition, when a problem occurs, it will be known to the prime contractor.
- . It provides the opportunity for the Building Inspection section to provide quicker service to the construction industry by: reducing the time of subcontractors in traveling to the City Government Building to obtain their permits; simplifying the permit application form so it's easier to fill out; allowing the contractor to be concerned with only one permit instead of at least four; and eliminating the problem of a contractor being concerned whether all subcontractors have a permit.
- . The periodic problem of a separate fee system (like misunderstandings regarding the total amount of permit fees to be paid or disagreements between the contractor and subcontractor on the valuation of electrical or mechanical work) are eliminated since the prime contractor states the total valuation of the project and is assessed only one fee.
- . It should cut almost in half the internal paperwork requirements of the office staff associated with the permit application process by reducing the number of pieces of paper generated, handled, stored and accessed. This should save money in terms of staff time, paper, forms, filing and storage costs. It should also eliminate the delivery of permits to subcontractors.

If a single permit system is instituted, application and permit forms will need to be redesigned, and orientation will be needed for contractors and Building Inspection personnel on the new procedures.

12. Building Permit Enforcement

The Building Inspection staff is impressed that the policy of levying a penalty for construction performed without a permit is a justified corrective measure. The City of Fremont doubles the permit fee for work completed without the benefit of a valid permit. However, there is "evidence" that this penalty is an inadequate deterrent, as certain individuals may choose to add the penalty fee to the overhead costs, and it becomes more profitable to evade the permit fees for concealable jobs (i.e., interior remodeling), and pay the penalty when, and if, the violation is detected and abated.

The Chief Building Official feels that action against the contractor's license and ability to operate in Fremont, and punitive penalty fees would help in keeping everyone honest and provide for the necessary safety inspections.

The enforcement capabilities and penalties are both legal and policy issues that should be addressed in a written proposal from the Chief Building Official. This proposal would be considered by the division and department management for presentation as an enforcement ordinance and an amendment to the Master Fee Resolution.

13. Improvements to General Administration

Some of the tasks performed by the inspection staff do not require their professional expertise and attention. These tasks could be performed by clerical and part-time employees. Examples of tasks that could be shifted include the following:

- . Sign Abatement: part-time student workers with proper identification and training could pursue this program.
- . Posting inspections to the office copy of the permit could be performed by part-time clerks.
- . Retrieving vehicle keys from the basement, and driving the vehicles to the Corporation Yard for fueling and maintenance.
- . General record keeping.
- . Folding maps and plans.
- . Receiving permit applications.

The above tasks can be performed by less costly personnel. The same is not true for the preparation of the section budget.

- . The budgetary process is a management responsibility. The Fiscal Year 1975/76 Building Inspection budget was prepared by non-management personnel with cursory direction from the Acting Chief Building Official. The section head should maintain a leadership posture in determining the future needs, objectives, and resources necessary to plan and fulfill future program requirements.

The Building Inspection Specialist who prepared the budget, often serves in the capacity of an administrative assistant. He has prepared research reports, compiled data for informational documents, and formulated operating procedures.

- . Through some accident, Building Inspection became responsible for maintaining the City copy of the State of California Administrative Codes (25 volumes). This is an appropriate responsibility of the City legal staff, not Building Inspection.

The City should consider the possible future use of a "technician" classification in the Building Inspection section to perform some of the tasks described above which do not warrant the professional skill or compensation level of a building inspector. This training position would be a less costly staffing alternative for the City of Fremont.

14. Records Management

The Building Inspection records system was not intensively evaluated. Only preliminary findings are listed below:

- . The administrative files maintained by the Building Inspection Secretary are well organized and indexed for ready access.
- . Under the present records system, the City bears the cost for microfilming and storing construction plans. The microfilming costs could be deferred to the public client, as an additional charge for plan checking.
- . A problem exists in viewing the (35 millimeter) microfiche on the small screen of the microfilm reader, suited for 16 millimeter film. A viewer should be provided that projects a full sheet of a plan individually.
- . During the past year, the Building Inspection permit files have been debulked and the files in-storage at the Corporation Yard have been microfilmed. The office files are being evaluated by the Building Inspection staff for filming and destruction.
- . The permit files occupy 19 four-drawer legal size file cabinets, a floor space of 67.7 square feet plus an equal amount of space for opening the drawers. The following considerations are submitted as a preliminary work plan for realizing office space economies.
 - Investigate the cost/benefit of microfilming and off-site, long-term storage.
 - Employ a combination of on-site and off-site permit storage. For example, permits issued within the last five years could be maintained in the office, all others would be kept in long-term storage, provided they could be easily and quickly retrieved.
 - Active work files would be stored in a special bin for immediate access and easy posting.
 - The street address card file would continue as the master office reference.

The Building Inspection staff is aware of the records management dilemma in storage space and in maintaining legal documents. The above mentioned findings and recommendations are provided as a guide to future decisions that require attention.

15. Formalize Policies and Procedures

Building Inspection has operated from Standard Operating Procedures (SOP). Implementation of a Departmental Operating Instruction (DOI) manual was begun for the former Community Development Department in early 1975. The intention was to transition the SOP's to the DOI format, when the organization change made this effort inoperative. A renewed effort to institute the DOI manual for Building Inspection is an option that has merit.

Policies are continuing decisions and objectives which apply to repetitive situations. Procedures are descriptions of the manner or method by which work is to be performed.

The purpose of policies and procedures is to:

- . Insure consistency.
- . Reduce the decisions to be made.
- . Reduce job training requirements.
- . Aid in the coordination of several operations.
- . Permit more activities to be handled routinely with the management personnel concentrating on the exceptions.

While informal policies have been established in some areas, there is a need to formalize policy statements and broaden the base of existing policies. This should be done in the following areas:

- . Service Levels--to define the types and the scope of service and assistance to citizens and those doing business in the City.
- . Interpretation--to clarify the meaning and intent of particular portions of existing codes and ordinances.
- . Enforcement--to establish the degree and limits of enforcement action to be taken against violators of building, zoning or housing codes.

Procedures should be established for all major processes such as the issuance of building permits, routing of plans for checking, issuance of use and occupancy permits, etc. These procedures should prescribe the purpose of the process, define the documents and files to be used, specify information required and its source, identify the organization units and personnel involved in processing and decision-making, and specify distribution and storage of documents and records.

16. Staff Development Program

The responsibilities of Building Inspection cover areas where substantial change is taking place.

- . Building materials and techniques are undergoing continuing improvement and revision.

- . Building codes are growing in number and complexity.
- . The scope of the Building Inspection duties are expanding in the area of community standards and in the growing number of zoning codes and ordinances.

This rapid and continuing change creates a demand and challenge on the talents and capabilities of the Building Inspectors. There is a continuing need to upgrade proficiency. This can be accomplished by means of a planned program of staff development, designed to increase the technical expertise of the staff. The program should have three primary emphases.

The first would provide for formal training sessions for all professional personnel. These classes should be of at least one hour's duration and should include presentations and discussions by the City staff, covering their area of specialization, and by speakers from outside the City. Following is a suggested list of topics for these weekly training sessions.

- . Basic inspection requirements for each of the building crafts
- . Interpretations of codes
- . Features of various materials
- . Human and public relations
- . Uniformity of service
- . Service levels
- . Features of major projects planned for the City
- . Legal interpretations and capabilities
- . Reports on proceedings of groups and associations
- . Activities of other City departments and of related functions in county and state government
- . Current problems

The weekly meeting would also be an excellent time to discuss, explain, and resolve personnel responsibilities, procedures, and operational policies.

Guest discussion leaders might include:

- . Representatives of each of the building trades
- . Contractors, architects, and developers
- . Fire Department personnel
- . Legal staff

- . Engineering personnel
- . Utilities personnel
- . County health personnel
- . Representatives of producers of building materials

The second opportunity for staff development consists of a program of job rotation and in-service training. The Acting Chief Building Official and the inspectors have identified the need to rotate the personnel through the different areas both in the field activities and the office duties. This opportunity would provide renewed challenges, broaden experience levels, and develop back up personnel. At a minimum job rotation should occur on an annual basis, and a six month period would be advisable.

Industrial and commercial construction plan checking is performed by one individual, a Senior Building Inspector. There is no one else on the staff qualified to provide this service and a program for training a reserve person is recommended.

The Building Inspection staff is composed of inspectors, who possess different skills. A program for cross-training in the field and office that would exploit these skills should be implemented. Furthermore, the specialists should provide field instruction and supervision to insure quality control and uniform practices.

The third major area of training would consist of greater participation in associations of building officials and inspectors. Membership and active participation in the various groups dealing with building practices and code writing should be encouraged. This should include provision for reimbursement for membership fees and a budgetary allocation for attendance at some of the meetings and conferences sponsored by these groups. In establishing these practices, several guidelines are suggested:

- . Establish a list of desirable organizations and determine desirability of membership by specific staff members.
- . Establish a requirement for local, non-reimbursed time participation before attendance at any special conference or meeting is authorized.
- . Establish budgets so that each staff member can attend at least one special event every two years.
- . Require a written report of each special event by the attendee, designed to share his experiences and new knowledge with other members of the section.

With the present staff authorization and limitations on City staff expansion and the "assumed" decline in building activity, limited personnel advancement opportunities exist in the organization. In addition, the staff consists of a relatively small number of employees with a low rate of turnover.

Incentives should be considered to compensate better qualified and better performing inspectors. A pay differential may be appropriate, as inspectors become more proficient, obtain additional training qualifying them to perform additional tasks, and/or upon certification of ability.

17. Zoning Enforcement

The Zoning Enforcement program handles special investigations that overlap into several city areas (i.e., Planning, Building Inspection, Tax and License, Police, and Fire) and county activities (i.e., Health). The investigations are largely initiated through citizen complaint. Responding in this manner does not provide a systematic program of abating zoning use violations and can place the City in an awkward situation in individual cases (i.e., neighbor disputes).

The federally funded Comprehensive Employment and Training Act (CETA) has afforded the City the opportunity to hire a Zoning Enforcement Officer Trainee to assist the one Zoning Enforcement Officer. Additional staff consists of one part-time employee to do field research. Two activities have been pursued by this casual employee, one is the Abandoned Vehicle Abatement program funded through reimbursements from the California Highway Patrol, the second is the Vehicle Equipment Parking (Recreational Vehicle) Ordinance program. The pursuit of the latter program has lead to the serious decline of the former. One of the difficulties of administering these programs is the limited time the Zoning Enforcement Officer has to supervise the part-time employee, and this factor inhibits effectiveness. A complementary difficulty is the inability to delegate enforcement powers to supporting employees, this necessitates that in cases other than voluntary compliance, the ZEO must abate the violation.

Public relations is the watchword with zoning enforcement, because the human interaction is very direct. Observations of the ZEO revealed a tactful method of interrogation and fact finding.

The incumbent Zoning Enforcement Officer has expressed the need for program enlargement (i.e., additional personnel) for the following reasons:

- . To keep pace with the City's demands for special investigations.
- . To provide a systematic program rather than responding to individual complaints.
- . To clear backlogged projects, for example, abating illegal garage conversions.
- . To pursue the cost-covering Abandoned Vehicle Abatement program.

Two neglected areas of concern for the Zoning Enforcement program are investigations of use permits to insure that the imposed conditions are being met, and the investigation of illegal businesses. These are especially important when a change in use is completed that does not require a building permit and subsequent building inspections. The enforcement of zoning regulations is not always performed in these cases, because the ZEO may not have the time.

The attainment of greater effectiveness in zoning enforcement is a policy issue, because it necessitates program expansion. The other alternative would be to curtail certain activities and emphasize select project areas. Narrowing the program focus will yield particular increases in effectiveness.

The recommendation that is a result of this preliminary analysis is for the department management to establish a policy for zoning enforcement that will draw the lines for the performance of program activities and allocate the necessary resources. The ZEO should participate in this policy decision by preparing a report on possible activity categories. This report will explain the usefulness and the productive outputs for the citizens of Fremont that are a consequence of the program; and it should precisely describe workload and staffing requirements.

18. Methods Employed by Other Jurisdictions

In reviewing the literature and contacting other cities, the WPPMS analyst became aware of innovations in the building inspection function. Many of these ideas were not evaluated for application in Fremont, however some are suggested for consideration in the future.

- . Electronic pager. Each field inspector could be issued a paging device, so that the supervisor could signal an inspector to telephone the office. Unlike the two-way radio, which can only be used when the vehicle is occupied, the pager would be carried by the inspector for constant access. A more costly alternative would be a walkie-talkie system.
- . Code-o-phone. This device could be used to record inspection requests, which would lighten the load on the office switchboard, and facilitate batching the work schedule.
- . User survey. The Building Inspection section does not systematically determine consumer satisfaction with the services performed, especially with regard to fulfilling the program goals and objectives. A questionnaire could be developed to obtain a measure of effectiveness.
- . Data processing. These systems could be used in a number of ways including: records management, workload statistics, and work distribution to name a few.

CHAPTER III

STAFFING LEVELS AND PLANS

A system has been developed for forecasting staffing needs in the Building Inspection section based on expected workloads and service levels. This system is explained in the following sections. Attachment J provides a work distribution chart for the Building Inspection staff, and Attachment K presents the method for calculating a person work year.

PLANNING ASSUMPTIONS FOR FIELD INSPECTION PERSONNEL

Exhibit 3, on page 32, has been prepared to demonstrate how staffing needs in fiscal year 1975/76 can be determined. Key planning assumptions used in making these forecasts are summarized below:

- . The index used to project inspection workload and consequently the number of necessary field positions is the estimated number of permits which will be issued during fiscal year 1975/76. The figures used in this exhibit are the Building Inspection budget projection of 6,625 permits and a leveling forecast of 5,500 permits. The latter represents a similar activity level to that occurring in fiscal year 1974/75.
- . The service level forecasted ranges from an average of four inspections per permit to a high of seven inspections per permit.
- . The time available to field inspection personnel for handling inspections could range from 70% of working levels (which currently is the case) to 85% (which is an achievable target if a work planning and control system is initiated to maximize the field time of inspection personnel).

When these planning assumptions and variables are applied, the following staffing requirement could result: If an average of five inspections occur per building permit issued, the number of field inspectors needed could range from four to five if the average time per inspection remains at 12 minutes.

The project analysts have determined that ideally four field inspection positions would be adequate for the fiscal year 1975/76 if:

- . Building activity remains at 1974/75 levels,
- . Only five inspections occur per permit issued,
- . The average inspection time remains at 12 minutes, and
- . Inspection personnel spend 85% of their time in the field.

It should be recognized that the four field positions do not account for differences in qualifications and capabilities that distinguish individual inspection positions. In the following exhibit, no distinction is made between generalist inspectors and specialists, and the latter's abilities are actually divided into building, electrical, and mechanical/plumbing categories. Not everyone on the staff is interchangeable, and the demands of the specialists for technical plan checking in the office will limit their ability to achieve the objective of a higher percentage of time devoted to field activities. Another consideration that must be accounted for is the high number of inspection stops with only one time consuming inspection that are made by the Building Inspection Specialists. This factor will prevent their attaining the target of 12 minutes per inspection. The work demands of the specialists introduce variables that can not be ignored, and these considerations necessitate lowering the expectations for field staff reductions. In addition, the absence of either of the field specialists decreases technical expertise in the electrical and mechanical/plumbing areas. The recommendation for 4.5 field positions provides not only for plan checking; it also makes allowances for other field activities, such as, special investigations and violation abatements.

A major factor which recommends against work force reductions is the recent upturn in building permits issued. This unexpected surge, occurring during the month of May, 1975, indicates that the FY 1975/76 summer demand for inspections will surpass earlier estimates. In addition, the time-consuming special inspection requirements for the City capital projects and commercial projects developing in Fremont will also increase demands on the inspection staff. The dynamics of the upturn are presented in the table below:

<u>Fiscal Year</u>	<u>Building Permits Issued</u>		<u>Valuations in \$1000</u>		<u>Authorized Positions</u>	<u>Filled Positions</u>
	<u>May</u>	<u>11 months</u>	<u>May</u>	<u>11 months</u>		
69/70	219	1771	\$ 4,041	33,541	13	13
70/71	301	2342	4,035	43,506	12	12
71/72	252	2562	13,129	50,940	12	12
72/73	222	1588	3,945	34,372	12	12
73/74	196	1470	1,945	24,064	12	11
74/75	307	1922	8,742	34,540	12	10

There has been significant variations in the number of building permits issued, and this has been accompanied with only a mild reduction in staffing. Analysis indicates that Building Inspection was somewhat under staffed during FY 1971/72, and the declining trend leans toward the optimization of staffing levels.

The recent escalation in the number of permits issued necessitates suspending field inspection work force reductions until building activity returns to a "normal" level. This will probably occur in the Fall of 1975. Longer range staffing considerations, coupled with the methods improvements recommended in Chapter II and assuming former workload levels, would reduce the field staff to 4.5 positions.

EXHIBIT 3BUILDING INSPECTION FISCAL YEAR 1975/76
FIELD WORKLOAD AND STAFFING ESTIMATESWorkload Generators

<u>Estimated Number</u>	<u>Budget Projection</u>	<u>Leveling Forecast</u>
Building Permits	2425	2100
Other Regulatory Permits	<u>4200</u>	<u>3400</u>
TOTAL	6625	5500

Budget Projection

Assumptions:

1. The inspection workload is based upon the issuance of 6625 permits.
2. The expanded estimate of workload maintains the current inspection time guideline of 12 minutes per inspection.

<u>Service Levels</u> (Number of Inspections Per Permit Issued)	<u>Number of Field Inspectors Required</u>	
	<u>Under Present Utilization (70% of time in the field)</u>	<u>Under Increased Utilization (85% of time in the field)</u>
7 inspections	7.7	6.3
6 inspections	6.5	5.4
5 inspections	5.5	4.5
4 inspections	4.4	3.6

Leveling Forecast

Assumptions:

1. The inspection workload is based upon the issuance of 5500 permits.
2. The conservative estimate of workload maintains the current inspection time guideline of 12 minutes per inspection.

<u>Service Levels</u> (Number of Inspections Per Permit Issued)	<u>Number of Field Inspectors Required</u>	
	<u>Under Present Utilization (70% of time in the field)</u>	<u>Under Increased Utilization (85% of time in the field)</u>
7 inspections	6.3	5.2
6 inspections	5.5	4.5
5 inspections	4.6	3.8
4 inspections	3.6	3.0

The WPPMS group has considered increasing the time spent per inspection to a "target" of 15 minutes. This service level alternative would increase inspection time by 35%, assuming that travel was held constant. The goal would be to achieve more thorough inspections. At the present time, insufficient data prohibit full consideration of this alternative, and there is no evidence of inadequate inspection services.

PLANNING ASSUMPTIONS FOR OFFICE PERSONNEL

Exhibit 4, following this page, presents a preliminary analysis of office staff needs. As indicated in this exhibit approximately 2.5 person years are needed to fulfill the current workload requirements of the three non-management personnel if a 100% staff utilization rate can be achieved. The present utilization rate for the office staff stands at 82.5%. This figure was calculated using industrial engineering techniques. The unproductive time was attributed to idle time and an undemanding work pace.

With serious efforts to increase staff utilization through work control procedures, and the implementation of the office methods improvements described in the previous chapter, the long range expectation to achieve higher productivity levels should be realized. The reduction of 0.5 persons in the office can be achieved through greater utilization alone.

Caution must be exercised in considering work force reductions, because it is difficult to identify and segregate a half person. The underutilization is distributed throughout the numerous activities that occupy the work day of the three office inspectors. However, it is not unreasonable to demand greater efficiency when there is an identifiable slack in the office operations.

A higher rate of staff utilization is contingent upon deploying a single inspector to service the public counter in order to reduce the interruption factor throughout the office staff. The other office inspector and the supervising Senior Building Inspector would provide backup for the assigned inspector's absences.

The analysis of the office workload does not bear the same precision as the analysis in the field because the workload data available is not of the same quality or quantity. This situation should be corrected in the future, so that accurate measurements of the office tasks can be analyzed. The greatest deficiency occurs in attempting to establish standards for plan checking. The different categories, commercial, industrial, and residential, should be delineated. In addition, the complexity of the plan review should also be indicated for reporting purposes. For example, the initial plan check of a residential model will serve as the standard for all subsequent reviews of that particular dwelling unit. Consequently the exacting first check will require much more time than all those that follow for that particular unit.

Daily activity logs should be maintained noting phone calls and subject, public counter inquiries, plan checking by category, permit reviews, and all the other tasks performed by the office personnel. These records should also contain the time allocations to perform these duties. A minimum of one year of data would be necessary to determine reasonable time standards, which would be used for internal management control and forecasting staffing needs.

EXHIBIT 4

BUILDING INSPECTION FISCAL YEAR 1975/76
OFFICE WORKLOAD AND STAFFING ESTIMATES

The present non-management office staff consists of one Building Inspector Specialist and two Building Inspectors for a total of three positions.

Activities Logged to Monthly
Report during 1974

Person Years

Surveys	0.03
Reports	0.73
Abating Violations	0.09
Plan Checking	0.59
Investigating Complaints	0.02
City Projects (debulking files)	0.24
Office Conferences	0.23
Telephone	0.56
Public Counter	<u>0.12</u>
 TOTAL	 2.61
 Field Work	 <u>0.39</u>
 TOTAL	 3.00

The work measured productivity for the office personnel was rated at 82.5% utilization. Applying this rate to the three positions, the WPPMS analyst has established that without detracting from the present service levels, the office could be staffed by 2.5 persons. This reduction would result in a 100% utilization rate.

CONCLUSION

During the interim period spent implementing a work control system and improving office operations, it is not unrealistic to consider eventually reducing the staff by one full position. The staff loss would be shared by the field and office personnel. This may create problems of adjustment and some flexibility should be expected to balance workloads. Shifts in staffing would be determined by the Senior Building Inspector. The goal is to achieve the optimal sized Building Inspection staff for the workload.

The immediate elimination of a position without the implementation of recommended methods improvements will mandate a period of hardship and adjustment that may be counter-productive to improving the operations. The following chart provides guidelines for scaling down the building inspection staff to meet the expected workload.

	<u>No. of Authorized Positions</u>	<u>No. of Filled Positions</u>	<u>Recommended Staff Level</u>
Position:			
Chief Building Official	1	0	1
Senior Building Inspector	2	2	2
Building Inspector Specialists and Building Inspectors:			
Field	6	5	4.5
Office	<u>3</u>	<u>3</u>	<u>2.5</u>
TOTAL	12	10	10.0

During the past year significant cost avoidance in Building Inspection has been the result of salary savings accrued from the two position vacancies.

STAFF REDUCTIONS AND ALTERNATIVE SERVICE

Work force reductions naturally create anxiety on the part of employees, who are unsure of what the future holds for them. These difficulties can be reduced through personnel planning and through early notification of the individuals affected. Those employees scheduled for lay-offs should be afforded the opportunity to qualify for other position vacancies.

There are options to consider prior to taking the serious action of laying-off a competent, trained employee. These options require policy authorization, because they expand programs and need City resource allocations. The four activity areas identified as potential opportunities for employing a person with Building Inspection experience and requiring minimal retraining are:

- . Fire Inspection
- . Real Property Administration
- . Zoning Enforcement
- . Administration of proposed City housing programs

A growing trend in municipal organizations is the consolidation of inspection services. The successful transitioning of a building inspection position to other types of inspection duties could be viewed as an opportunity to evaluate the acceptability of this innovation in City administration.

APPENDICES

APPENDICES

1. [Illegible text]
2. [Illegible text]
3. [Illegible text]
4. [Illegible text]
5. [Illegible text]
6. [Illegible text]
7. [Illegible text]
8. [Illegible text]

APPENDICES

APPENDICES

WORK PLANNING and PERFORMANCE MONITORING
SYSTEM

BUILDING INSPECTION DIVISION
"LAUNDRY LIST"

1. Business Licenses. When D.O. review is required and is not obtained, business tax is paid and they open for business. Who follows up on violations? Need procedure.
2. Business License Zoning Clearance. Need referral system, fee, mini-D.O. to determine compliance with zoning, building, engineering and fire regulations.
3. Criteria for Measuring Field Inspectors' Workload and/or Efficiency.

Advantages or disadvantages of assigning inspectors to geographic areas.
4. Criteria for Measuring Workload and Efficiency of D.O. Coordinator.
5. System for Follow-up and Enforcement of Conditional Use Permit Conditions.
6. Advantages of a Single Application Form for building, plumbing, electrical and mechanical permits.
7. Record Retention and Microfilm
8. Expired Permits - follow-up system

--- Robert W. Brown
ACTING CHIEF BUILDING OFFICIAL

ATTACHMENT BBUILDING INSPECTION BUDGET
Allocations, Expenditures, Revenue

	<u>69/70^A</u>	<u>70/71^B</u>	<u>71/72</u>	<u>72/73</u>	<u>73/74</u>	<u>74/75^C</u>
Authorized Budget						
Building Inspection	189,411	214,029	192,727	201,578	105,713	112,417
Plan Review ^D					<u>123,640</u>	<u>108,161</u>
Total	189,411	214,039	192,727	201,578	229,353	220,578
Increase/Decrease \$		24,628	-21,312	5,851	27,775	-8,775
Increase/Decrease %		13	-10	3	14	-4
Percentage of Total City Operating Budget	2.7	2.7	1.8	1.5	1.3	1.1
5 year Increase \$						31,167
5 year Increase %						16.45%
Average Annual Increase %						3.29%
Actual Expenditure	188,421	210,309	188,839	190,354	200,816	
Revenue	260,156	346,975	353,166	255,249	213,830	

A \$8,818 included for vehicles.

B \$12,000 included for vehicles.

C Clerical services not included.

D Building Inspection and Plan Review were placed in separate accounts in FY74

ATTACHMENT C

BUILDING INSPECTION AUTHORIZED POSITIONS

	<u>69/70</u>	<u>70/71</u>	<u>71/72</u>	<u>72/73</u>	<u>73/74</u>	<u>74/75</u>	<u>75/76</u>
Chief Building Official	1	1	1	1	1	1	1
Senior Building Inspector	2	2	2	2	2	3	2
Building Inspector Specialist	3	3	3	3	3	3	3
Building Inspector	7	6	6	6	6	5	6
Zoning Enforcement Officer	0	1	1	1	1	1	1
Secretary/Clerical	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2*</u>	<u>2*</u>
Total	15	15	15	15	15	15	15
Building Inspector assigned to Development Organization	1	1	1	1	1	1	1

BUILDING INSPECTION POSITIONS BY BUDGET ACCOUNT AND ACTUAL STAFFING LEVELS

	<u>Plan Review</u>	<u>Building Inspection</u>
Chief Building Official	1/2 (vacant)	1/2 (vacant)
Senior Building Inspector	2**	0
Building Inspector Specialist	1	2
Building Inspector	2	3 (1 vacant)
Zoning Enforcement	1	

* Budgeted to Community Development Administration

** 1 Senior Building Inspector has appointed the Acting CBO.

BUILDING CONSTRUCTION AUTHORIZED AND
BUILDING INSPECTION ACTIVITY

	<u>69/70</u>	<u>70/71</u>	<u>71/72</u>	<u>72/73</u>	<u>73/74</u>	<u>11 months</u> <u>74/75</u>
NEW CONSTRUCTION						
One & Two Family Dwellings (Dwelling Units)	(1,098)	(1,905)	(1,550)	(509)	(329)	(528)
Number	951	1,532	1,534	499	324	528
Value \$1,000	17,823	31,001	30,767	13,451	10,741	24,124
Multi-Residences (Dwelling Units)	(1,350)	(1,610)	(1,726)	(716)	(283)	(80)
Number	25	27	21	11	3	2
Value \$1000	14,092	21,637	21,833	10,253	3,840	1,220
Commercial						
Number	32	40	28	23	22	9
Value \$1000	3,352	3,857	2,204	7,273	3,209	2,172
Industrial						
Number	11	10	15	16	8	6
Value \$1000	936	2,020	2,872	4,759	2,201	3,154
Public Buildings						
Number	-	4	-	2	2	1
Value \$1000	-	756	-	174	25	148
Churches						
Number	-	3	2	1	2	3
Value \$1000	-	283	391	575	85	650
Swimming Pools						
Number	136	137	179	181	172	126
Value \$1000	479	493	625	649	626	435
Signs						
Number	180	381	446	349	287	302
Value \$1000	75	98	106	104	75	91
TOTAL NEW CONSTRUCTION:						
Number	1,335	2,134	2,225	1,082	820	977
Value \$1000	36,756	60,143	58,797	37,238	20,802	31,995

ADDITIONS & REPAIRS	<u>69/70</u>	<u>70/71</u>	<u>71/72</u>	<u>72/73</u>	<u>73/74</u>	11 months <u>74/75</u>
One and Two Family Dwellings						
Number	590	589	868	695	731	851
Value \$1000	762	706	940	928	1,012	1,675
Multi-Residences						
Number	4	5	13	13	20	4
Value	46	33	49	647	54	18
Commercial						
Number	66	84	91	89	81	73
Value \$1000	605	433	1,349	1,593	611	612
Industrial						
Number	11	21	18	17	17	14
Value \$1000	972	756	1,398	592	4,404	226
Public Buildings						
Number	4	3	2	1	2	1
Value \$1000	552	11	125	57	56	8
Churches						
Number	3	4	10	8	1	2
Value \$1000	178	37	193	184	5	6
TOTAL ADDITIONS & REPAIRS:						
Number	678	706	1,002	823	852	945
Value \$1000	3,115	1,976	4,053	4,001	6,141	2,545

SUMMARY

TOTAL NEW CONSTRUCTION:						
Number	1,335	2,134	2,225	1,082	820	977
Value	36,756	60,143	58,797	37,238	20,802	31,995
TOTAL ADDITIONS & REPAIRS:						
Number	678	706	1,002	823	852	945
Value \$1000	3,115	1,976	4,053	4,001	6,141	2,545
TOTAL ALL BUILDING PERMITS:						
Number	2,013	2,840	3,227	1,905	1,672	1,922
Value \$1000	39,871	62,120	62,850	41,239	26,944	34,540

	<u>69/70</u>	<u>70/71</u>	<u>71/72</u>	<u>72/73</u>	<u>73/74</u>	<u>11 months 74/75</u>
REGULATORY PERMITS ISSUED						
Electrical	1,832	2,581	2,722	1,923	1,510	1,207
Mechanical	1,240	1,969	1,800	1,296	771	868
Plumbing	1,587	2,625	2,087	1,620	1,007	980
Other	107	131	167	99	100	217
Total	4,809	7,306	6,776	4,938	3,388	3,272
TOTAL BUILDING AND REGULATORY PERMITS	<u>6,822</u>	<u>10,146</u>	<u>13,230</u>	<u>6,843</u>	<u>5,060</u>	<u>5,194</u>

INSPECTION ACTIVITIES AUTHORIZED

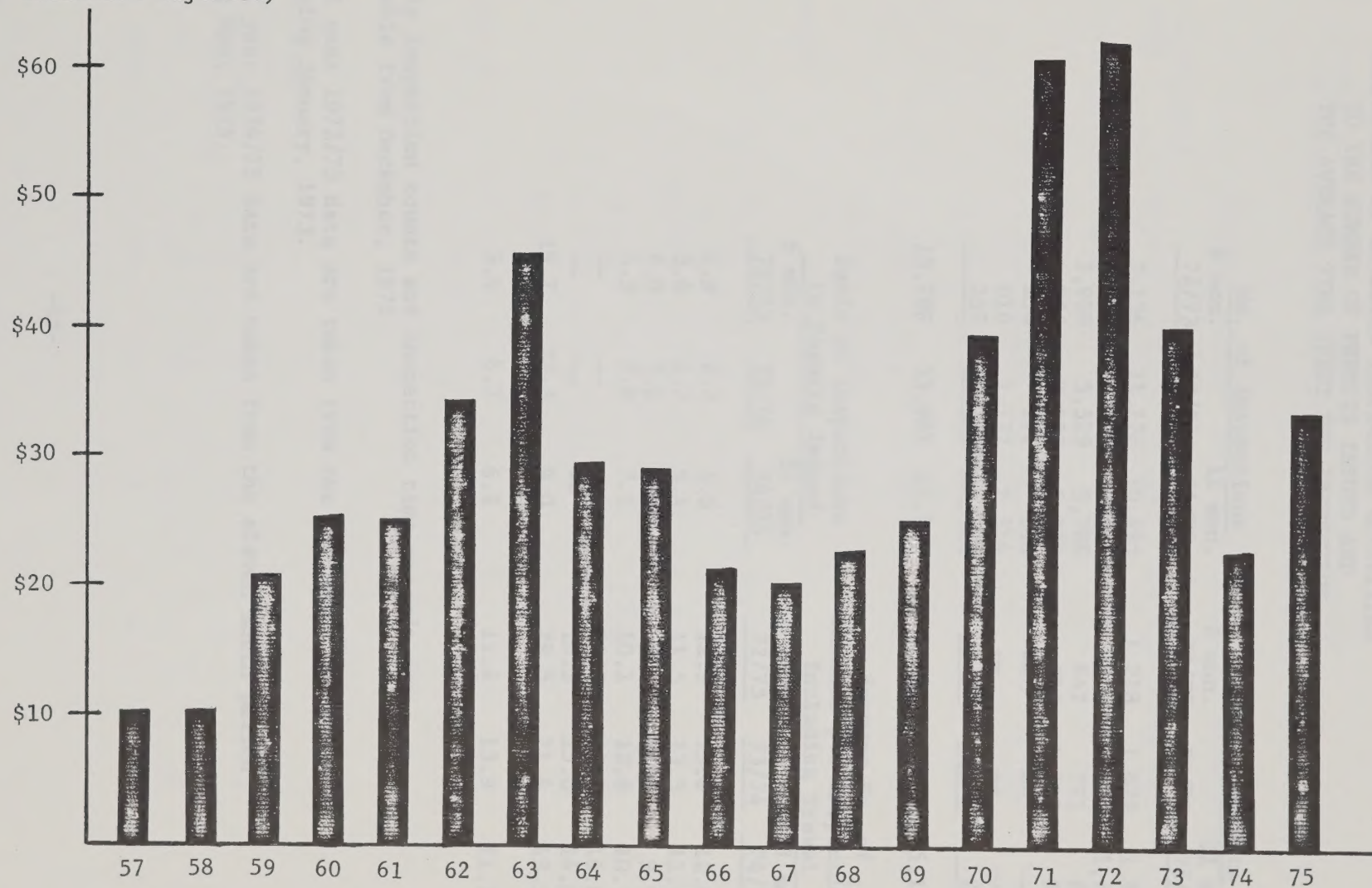
	<u>7 months 72/73</u>	<u>11 months 73/74</u>	<u>11 months 74/75</u>
FIELD INSPECTIONS			
Building	8,590	11,176	10,495
Electrical	4,062	7,149	6,564
Mechanical	4,719	5,529	5,788
Plumbing	4,937	7,903	6,938
Sign	170	177	160
Zoning	717	1,772	1,514
Other	<u>237</u>	<u>279</u>	<u>279</u>
TOTAL	<u>23,432</u>	<u>33,985</u>	<u>31,738</u>

	<u>69/70</u>	<u>70/71</u>	<u>71/72</u>	<u>72/73</u>	<u>73/74</u>	<u>11 months 74/75</u>
OTHER ACTIVITIES						
Abandoned Vehicles Abated	-	-	-	-	486	153
Business Tax Reviews	507	129	143	521	579	575
Consultations					1,140	2,091
Historical Architectural Review Board	8	7	12	13	15	8
Site Plan and Architectural Review Board	360	611	714	322	95	62
Plans Checked	-	-	-	-	1,099	2,148
Complaints Investigated	398	463	447	491	1,162	1,253
Violations Abated	-	-	-	678	1,902	1,874
Special Reports	96	96	96	345	608	877
Telephone Communications	-	-	-	-	4,900	11,833
Underground Utility Exceptions	31	36	15	8	28	23
Utility Releases	1,922	2,158	3,136	1,723	1,282	928

BUILDING CONSTRUCTION AUTHORIZED

Fiscal Year Totals 1957-1975

Millions of Dollars
(not inflation adjusted)



ATTACHMENT E

ATTACHMENT F

COMPARISON OF BUILDING INSPECTION ACTIVITIES
TO THE NUMBER OF PERMITS ISSUED AND
THE AVERAGE TIME SPENT PER INSPECTION

	<u>No. of Inspections</u>			<u>No. of Permits</u>		
	6 mon.		11 mon.	6 mon.		11 mon.
	<u>72/73</u>	<u>73/74</u>	<u>74/75</u>	<u>72/73</u>	<u>73/74</u>	<u>74/75</u>
Building	7,136	11,176	10,495	1,218	1,672	1,922
Electrical	3,475	7,149	6,564	953	1,510	1,207
Mechanical	3,908	5,529	5,788	647	771	868
Plumbing	4,254	7,903	6,938	804	1,007	980
Signs	154	177	160	--	--	--
Zoning	616	1,772	1,514	--	--	--
Other	237	279	279	51	100	217
TOTAL	19,780	33,985	31,738	3,673	5,060	5,194

	<u>Ratio of Inspections to Permits Issued</u>			<u>Average No. of Minutes per Inspection Including Travel</u>		
	6 mon.		11 mon.	6 mon.		11 mon.
	<u>72/73</u>	<u>73/74</u>	<u>74/75</u>	<u>72/73</u>	<u>73/74</u>	<u>74/75</u>
Building	5.9	6.7	5.5	12.9	15.0	12.8
Electrical	3.6	4.7	5.4	11.5	13.3	11.4
Mechanical	6.0	7.2	6.7	9.0	12.8	9.9
Plumbing	5.3	7.8	7.1	10.1	12.8	10.7
Signs	--	--	--	14.7	19.1	16.8
Zoning	--	--	--	10.3	15.0	14.0
Other	19.7	22.3	9.0	29.5	21.4	19.1
Overall	5.4	6.7	6.1	11.4	13.9	11.7

NOTES: (1) Monthly inspection counts and inspection time records are available from December, 1972.

(2) Fiscal year 1972/73 data are taken from the six month period beginning January, 1973.

(3) Fiscal year 1974/75 data are taken from the eleven month period ending May, 1975.

ATTACHMENT G

COMPARISON OF THE BUILDING INSPECTION FUNCTION
IN SELECTED CALIFORNIA CITIES IN FY 1973/74

	<u>Fremont</u>	<u>Hayward</u> ^A	<u>Palo Alto</u> ^B	<u>Riverside</u> ^C	<u>Sunnyvale</u> ^D	<u>City X</u> ^E
Valuation of 1974 Authorized Construction (\$1,000)	26,944	44,173	35,628	35,745	38,045	50,700
Permits Issued:						
Building	1,672	1,475	1,276	3,245	1,429	2,459
Electrical	1,510	1,165	1,081	--	1,530	1,503
Mechanical	771	716	1,510	--	705	1,877
Plumbing	1,007	1,052	--	--	990	1,113
Fence and Roof	--	--	975	--	--	--
Other	100	--	189	--	117	--
TOTAL	5,060	4,408	5,031	--	4,771	6,952
Inspections Performed:						
Building	11,176	10,732	--	13,422	--	11,655
Electrical	7,149	4,752	--	10,009	--	7,543
Mechanical	5,529	3,415	--	--	--	7,937
Plumbing	7,903	6,305	--	13,711	--	8,436
Housing	--	--	--	6,332	--	--
Zoning	1,772	--	--	6,594	--	--
Other	279	--	--	330	--	--
TOTAL	33,985	25,204	14,759	50,398	22,186	35,571
Ratio of Inspections to Permits	6.7	5.7	2.9	4.1	4.7	5.1
Personnel (filed positions April, 1975):						
Building Official	1	1	1	1	1	1
Ass't Bldg. Official	-	1	-	-	-	-
Plan Check Engineer	-	1	1	1	1	3
Senior Bldg. Inspector	1	3		3	3	-
Bldg. Inspector Specialist	3	3	5	6	-	-
Building Inspector	5	4	--	--	1	4
Total B.I. Staff	10	13	7	11	6	8

Clerical Staff	2.5	Unk.	3	Unk.	Unk.	2.5
Special Engineering	-	-	-	-	-	2
Zoning Officer/Tech.	1	-	-	2	-	-
Ordinance Compliance	-	-	2	-	-	-
Housing Inspector	-	-	-	2	-	-
Trainee	<u>1</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
TOTAL	14.5	14+	12	15+	6+	12.5
Ratio of Valuations (\$1 million) to B.I. staff member	2.7	3.4	5.1	3.2	6.3	6.3
Ratio of Total Permits to B.I. Staff member	506	339	719	-	795	869
Ratio of Total Inspections to B.I. Staff member	3,399	1,939	2,108	4,582	3,703	4,446

NOTES:

- A. Hayward: Employs Inspector Specialist system with the exception of residential additions and alterations performed by generalists.
- B. Palo Alto: Employs Inspector Specialist system for commercial and industrial construction, and Combination Inspector system for residences. Eighty-six (86) percent of the building permits are issued for additions and alterations. The permit data are from FY 1973/74 and the inspection data are from calendar year 1974. Mechanical and Plumbing permits are grouped together.
- C. Riverside: Employs Inspector Specialist system, and the department also administers a housing maintenance and zoning enforcement program. The ratio is computed for building inspections per building permits only.
- D. Sunnyvale: Employs Combination Inspector system with deployment in geographic zones.
- E. City X: (Medium-sized city in the Bay Area). Employs Combination Inspector system, and the department administers grading performance standards and an earthquake safety program. Valuation and permit data are composed of a two year average for calendar years 1973 and 1974; inspection data for FY 1973/74.

BUILDING INSPECTION
 VEHICLE UTILIZATION
 (Assigned Automobiles)

City Identification Number	<u>3</u>	<u>4</u>	<u>13</u>	<u>14</u>	<u>16</u>
Type	4 dr.	4 dr.	4 dr.	4 dr.	4 dr.
	Sedan	Sedan	Sedan	Sedan	Sedan
Mileage (April 1, 1975)	40,413	36,096	40,405	42,492	38,135

The fire automobiles are equipped with two-way radios.

	MILEAGE					
<u>1974</u>	<u>Total</u>	<u>3</u>	<u>4</u>	<u>13</u>	<u>14</u>	<u>16</u>
January	3,256	595	709	689	611	652
February	3,407	750	575	861	668	553
March	3,436	650	709	909	560	608
April	2,926	508	498	976	640	304
May	3,713	853	983	1,093	658	126
June	3,140	803	651	953	555	178
July	3,008	667	1,067	216	649	409
August	3,756	765	950	889	654	498
September	3,031	180	983	864	668	336
October	4,520	1,318	1,030	812	617	743
November	3,205	889	341	662	699	614
December	3,317	835	369	921	691	501
TOTAL	40,715	8,813	8,865	9,845	7,670	5,522

<u>1975</u>					
January	968	1,298	757	811	680
February	815	670	771	735	536
March	1,189	1,035	796	630	611
	2,972	3,003	2,324	2,176	1,827

PROCEDURES FOR CENTRALLY
SCHEDULING AND CONTROLLING
FIELD INSPECTIONS

1. BASIC PROCEDURES

To implement centralized scheduling and control of field inspections conducted by building inspectors, certain basic policies must be instituted or reaffirmed. These policies include:

- a. Building permit holders should be notified at the time of permit issuance that inspection requests need to be received by the Building Department at least two days before the inspection is required and these requests should specify the preferred time, location, and contact for the inspection.
- b. Building Permit holders should be instructed that the normal time for calling in inspection requests is from 8:00 a.m. to 12:00 noon in the morning.
- c. Clerical or other office personnel who receive routine inspection requests by phone, which do not require the direct attention and handling of the Senior Building Inspector, should be instructed to use the standard form, Request for Inspector, B.I. No. 7. A copy of this form is provided below, the only addition which is suggested is to include a space for a telephone contact.

City of Fremont, California			
Office of the Chief Building Official			
REQUESTS FOR INSPECTION			
Permit No. _____		Date Received _____	Inspector _____
Owner or Contractor _____			
Ready for Inspection _____		A.M. _____	P.M. _____
BUILDING	ELECTRICAL	MECHANICAL	PLUMBING
Forms _____	Temp. Pole _____	Gas Appl. _____	Sewer _____
Frame _____	Temp. Release _____	A.C. System _____	Pl. U.G. _____
Ext. Lath _____	Underground _____	Heat/Cool _____	Pl. Rough _____
Int. Lath/W.B. _____	Rough _____	Rough _____	Gas Line _____
Rein. Steel _____	Survey _____	Final _____	Utility _____
Masonry _____	Utility _____	_____	Pl. Final _____
Concrete _____	Sign _____	_____	_____
Roofing _____	Final _____	_____	_____
Final _____	_____	_____	_____
Survey _____	_____	_____	_____
Address _____			
TRACT _____	BLOCK _____	LOT _____	
BI.7 5M 6/75			

All inspection requests received by phone should be routed promptly to the Senior Building Inspector and not directly to individual inspectors.

- d. Building inspectors should be authorized to take City vehicles home at the close of the working day so they can report directly to the site of their first inspection each morning. However, the beginning and ending mileage of each vehicle should be recorded for each week as an overall control over the use of each vehicle. On Monday mornings, inspectors initially would need to report to the City Hall to pick up their vehicles so that City cars are not at private residences over the weekend or when they are on vacation or holidays. This also would necessitate that inspectors arrange for transportation home on Friday evenings.
- e. The office time for building inspectors should be scheduled from about 4:00 p.m. to 5:00 p.m. each working day to finalize schedules, confer with divisional staff and handle other administrative matters. This "office time" should be well-known to all persons who interact with Building Inspection personnel.

2. SCHEDULING PROCEDURES

The basic procedures for central scheduling and monitoring of field inspections by the Senior Building Inspector are summarized below:

- a. An illustrative daily and "moving" schedule similar to the one on page 52 would be maintained and kept up to date by the Senior Building Inspector. The schedule would show the following:
 - . From 8:00 to 8:12 a.m. each Monday would not be scheduled since inspectors would pick up their vehicles and then go to the site of their first inspection.
 - . From 12:00 noon to 1:00 p.m. and from 4:00 to 5:00 p.m. each day would not be scheduled since these time periods normally would be used for lunch and "office time," respectively.
- b. The Senior Building Inspector would schedule inspections normally on 12 minutes increments, by location or address. However, more or less time could be scheduled depending on the complexity of the inspection to be conducted. This schedule would be completed and updated each day from about 1:00 to 2:00 p.m. after phoned-in inspection requests are received from 8:00 a.m. to 12 noon.
- c. The Senior Building Inspector would utilize several sources of information to schedule field inspections in advance, including:
 - . Inspection request forms.
 - . Information received from inspectors each day during the time they are in the office from 4:00 to 5:00 p.m.
 - . Letters of complaint from residents.

- d. All scheduled inspections would be done in pencil so that changes in the schedule could be easily made.
- e. The daily and weekly schedule for each inspector prepared by the Senior Building Inspector would be based on:
 - . The "availability" of each inspector taking vacations, sickness, and other authorized leaves into consideration.
 - . Each inspector's tract or functional assignment.
 - . The estimated time each inspection would require.
 - . The geographical area or location of the inspection so that travel time between inspection sites could be minimized.
 - . The anticipated workload of each inspector so that inspection requirements could be more evenly balanced.
 - . The type, location, and number of "preventative" inspections desired to fill schedule gaps if they exist.
- f. Of the approximately 34 to 35 inspection times available each day, only 28, or 80%, of these time periods would be formally scheduled to provide time for unanticipated "emergencies" or "rush" jobs. However, if unneeded, these times could be used for "preventative" inspections or other assignments.
- g. Between 4:00 and 5:00 p.m. each day, the schedule for each inspector for the following several days would be finalized based on such factors as:
 - . "Correction" or "follow-up" inspections that field inspectors discovered they must make.
 - . Inspection requests that come directly from building permit holders to field inspectors, particularly from construction projects where an inspector is assigned a substantial amount of his time.

This final updating also would take workload balancing into account among inspectors, and preferably should be done in a short group meeting with all inspectors and the Senior Building Inspector.

- h. At the end of each day, each inspector would be given a xerox copy of the updated and revised schedule plus inspection request forms which would contain more detail than would the schedule.

3. TESTING OF SCHEDULING PROCEDURES

The centralized scheduling and monitoring of field inspections should be tested for a two-week period to identify and correct any possible problems in the procedures as recommended. Once this "trial period" is over, the system should be instituted on a continuing basis.

ILLUSTRATION

FIELD INSPECTION SCHEDULE
(TO BE PREPARED FOR EACH WORK DAY)

DATE: _____ DAY: _____

INSPECTORS: (1) _____ (2) _____ (3) _____ (4) _____ (5) _____

TIME:

8:00	_____	_____	_____	_____	_____
8:12	_____	_____	_____	_____	_____
8:24	_____	_____	_____	_____	_____
8:36	_____	_____	_____	_____	_____
8:48	_____	_____	_____	_____	_____
9:00	_____	_____	_____	_____	_____
9:12	_____	_____	_____	_____	_____
9:24	_____	_____	_____	_____	_____
9:36	_____	_____	_____	_____	_____
9:48	_____	_____	_____	_____	_____
10:00	_____	_____	_____	_____	_____
10:12	_____	_____	_____	_____	_____
10:24	_____	_____	_____	_____	_____
10:36	_____	_____	_____	_____	_____
10:48	_____	_____	_____	_____	_____
11:00	_____	_____	_____	_____	_____
11:12	_____	_____	_____	_____	_____
11:24	_____	_____	_____	_____	_____
11:36	_____	_____	_____	_____	_____
11:48	_____	_____	_____	_____	_____
12:00	_____	_____	_____	_____	_____
1:00	_____	_____	_____	_____	_____
1:12	_____	_____	_____	_____	_____
1:24	_____	_____	_____	_____	_____
1:36	_____	_____	_____	_____	_____
1:48	_____	_____	_____	_____	_____
2:00	_____	_____	_____	_____	_____
2:12	_____	_____	_____	_____	_____
2:24	_____	_____	_____	_____	_____
2:36	_____	_____	_____	_____	_____
2:48	_____	_____	_____	_____	_____
3:00	_____	_____	_____	_____	_____
3:12	_____	_____	_____	_____	_____
3:24	_____	_____	_____	_____	_____
3:36	_____	_____	_____	_____	_____
3:48	_____	_____	_____	_____	_____
4:00	_____	_____	_____	_____	_____
4:12	_____	_____	_____	_____	_____
4:24	_____	_____	_____	_____	_____
4:36	_____	_____	_____	_____	_____
4:48	_____	_____	_____	_____	_____
5:00	_____	_____	_____	_____	_____

ATTACHMENT J

BUILDING INSPECTION WORK DISTRIBUTION
(Two Week Period November & December 1974)

<u>Activity</u>	<u>Per</u> <u>Cent</u>	<u>Total</u> <u>Hours</u>	Chief Bldg. Official (Acting)	Senior Bldg. Insp.	1 Bldg. Insp. Spec. (Off.)	2 Bldg. Insp. Spec. (Field)	2 Bldg. Insp. (Off.)	2 Bldg. Insp. (Field)	1 Bldg. Insp. (Signs)	1 Zoning Enforce. Officer
Administration	4.8	41.9	2.5	12.0	3.4	1.5	1.8	5.2	15.5	-
Conferences & Public Inquir.	14.7	129.9	16.8	19.6	18.9	2.7	35.5	9.8	7.3	19.3
Correspondence	9.0	79.1	12.6	10.3	15.1	17.1	11.6	4.9	5.1	2.4
Issuing Permits	5.5	48.3	-	-	1.5	13.5	21.0	10.5	-	1.8
Plan Checking	6.4	56.1	18.6	0.8	13.8	13.9	9.0	-	-	-
Preparation & Research	9.4	82.9		6.2	13.2	3.1	23.0	7.0	-	30.4
Record Keeping	3.6	31.3		0.8	1.0		25.8	1.0	-	2.7
Reports	3.3	29.2	0.5	2.0	4.3	7.8	5.5	5.8	-	3.3
Supervision	2.2	19.7	1.4	18.3	-	-	-	-	-	-
Mis. Activities	1.9	17.1	4.6	2.9	2.4	-	1.8	2.3	2.0	1.1
Total Office Time	60.8	535.5	57.0	72.9	73.6	59.6	135.0	46.5	29.9	61.0
Field Work	32.0	281.4	3.7	3.0	1.5	96.3	12.6	109.1	38.8	16.4
Unaccounted Time	1.8	16.0	6.8	1.2	-	-	-	-	8.0	-
Personel Time	5.4	47.1	12.5	2.9	4.9	4.1	12.4	4.4	3.3	2.6
Total Hours	100%	880	80	80	80	160	160	160	80	80

Percentage of hours spent by the Building Inspector Specialists and the Building Inspectors

	<u>1973</u>	<u>1974</u>
Percent in office	48	52
Percent in field	52	48
Total hours	15,077	15,966
Person Years	8.2	8.7

METHOD FOR CALCULATING A PERSON WORK YEAR

	By <u>Hour</u>	By <u>Day</u>	By <u>Week</u>	By <u>Month</u>	By <u>Year</u>
TOTAL TIME	2,080	260	52	12.0	1
Subtract:					
Holidays	88	11	2.2	0.5	0.05
Vacation	96	12	2.4	0.5	0.05
Sick Leave	<u>56</u>	<u>7</u>	<u>1.4</u>	<u>0.3</u>	<u>0.02</u>
Work Available Time	1,840	230	46.0	10.7	0.12
Subtract:					
Personal Time (breaks)	<u>115</u>	<u>14</u>	<u>2.8</u>	<u>0.7</u>	<u>0.05</u>
Actual Work Time	<u>1,725</u>	<u>216</u>	<u>43.2</u>	<u>10.0</u>	<u>0.83</u>

$$\text{STANDARD LEAVE RATE} = \frac{\text{TOTAL TIME} - \text{ACTUAL WORK TIME}}{\text{TOTAL TIME}}$$

$$= \frac{2,080 - 1,725}{2,080} = 0.1707$$

$$= 17.1\%$$

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